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# Why did Nobody Reply to Me? A Keyword Analysis of Initiating Posts and Lone Posts in Massive Open Online Courses (MOOCs) Discussions

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## Abstract

It is a common phenomenon that online discussion spaces are overabundant with lone posts; in other words, few posts receive replies from others. Admittedly, circumstantial factors and content affect whether a post receives replies. Yet, linguistic features within a post might also play a role in inviting replies. To investigate this hypothesis, a keyword analysis comparing initiating posts, which receive replies, to lone posts, which do not receive replies, was conducted. The posts were from the discussion in massive open online courses (MOOCs). MOOC discussion is one type of computer-mediated communication (CMC), with an emphasis on learning and is typically monitored by course facilitators. The keyword analysis revealed that initiating posts were often constructed in a question format, with hedges and indefinite pronouns to open up a dialogue and invite others to pitch in, whereas lone posts tended to be reflective and monoglossic in nature, yet with positive sentiments.

**Keywords:** Keyword Analysis, Online Discussion, MOOC

## 1. Introduction

Online discussion spaces, such as Usenet groups (Burke et al., 2007; Himmelboim, Gleave, & Smith, 2009), online news commenting spaces (Ziegele, Breiner, & Quiring, 2014) and distance learning online discussion (Dennen & Wieland, 2007), tend to have a huge number of lone posts. Lone posts are new posts that do not receive any replies, in comparison to initiating posts that do (Chua et al., 2017). Several reasons could account for the overabundance of lone posts in online discussion spaces. On one hand, internet users tend to create new posts, rather than replying to others, given that the online space is a levelling ground that allows users to say what they want to say instead of being obliged to respond to others as in a face-to-face conversation (Cavanagh, 2007). On the other hand, circumstantial factors such as timing of posting and design of the online discussion space, as well as the content of the posts may render a post less likely to be read, thus receiving no replies (Ziegele et al., 2014).

Besides these factors, it is possible that the discourse of the lone posts may be less dialogic than the initiating posts. Initiating posts could be constructed to create interaction with readers, thus inviting replies (Martin & White, 2005). To examine this hypothesis, linguistic features of lone posts and initiating posts were investigated in this study through keyword analysis. The posts comprising the corpus were taken from the discussions in Massive Open Online Courses (MOOCs) on FutureLearn<sup>1</sup>. On FutureLearn, learners can post their comments on almost every learning step/page, analogous to users' comments that appear below news articles published online. The discussion space in FutureLearn MOOCs is one kind of asynchronous computer-mediated communication (CMC). Yet, it differs from online forum or online news commenting spaces because it is set in a learning context and is often monitored

by facilitators (Ferguson & Sharples, 2014).

## 2. Online Discussion as a Dialogic Space

Online discussion, whether in MOOCs or other settings, can be operationalized as a dialogic space, which can be shaped by technological affordances, learning activities, content, and language (Wegerif, 2010; Ziegele et al., 2014). Education researchers have proposed that a dialogic space is one that promotes reflection and thinking (Wegerif, 2010), exploratory talk (Mercer, 2004) and co-construction of meaning (Littleton & Whitelock, 2005). The present paper focuses on how one factor--linguistic resources, could shape such a space in MOOCs. According to Wegerif (2010) and White (2003), a dialogic space can be shaped by linguistic resources that create:

1. intersubjectivity such that subjectivity and stances of each user could be shared and negotiated (Chandrasegaran & Kong, 2007; Dennen & Wieland, 2007; Du Bois & Kärkkäinen, 2012);
2. heteroglossia such that multiple voices, whether anticipated views, alternative views or views that have been stated, are considered (Bakhtin, 1983);
3. intertextuality such that different sources of contents or others' utterances are referred to (Bakhtin, 1983);
4. politeness (Brown & Levinson, 1987) and interpersonal relationship in a community. (Lander, 2015);
5. personal agency for each participation (Al Zidjaly, 2009; Wagner & Herbel-Eisenmann, 2008)

Various linguistic features and grammatical structures can be used to open up and expand a dialogic space. For example, an internet user could use linguistic features such as epistemic modality or hedges (e.g., *might*, *probably*, *I guess*) to qualify or mitigate his/her propositions by

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<sup>1</sup> [www.futurelearn.com](http://www.futurelearn.com)

expressing their attitude, confidence, uncertainty or source of evidence (Hyland, 2005; Stubbs, 1986). Constructions with these linguistic features, in contrast to categorical or bare assertions, provide space for alternative voices, thus inviting others' contributions. Previous research has been fruitful in revealing the pragmatic and discourse functions of various lexical devices and grammatical constructions in relation to intersubjectivity, heteroglossia, intertextuality and politeness (e.g., Biber et al., 1999).

Nonetheless, it is generally agreed among researchers (e.g., Du Bois & Kärkkäinen, 2012) that a one-to-one mapping between word forms and functions is not possible because a linguistic feature can carry multiple functions, and the textual and social context can affect its interpretation. Therefore, in the present study, instead of comparing the word frequencies of a fixed list of linguistic features found in initiating posts and lone posts, a corpus- or data-driven approach (keyword analysis) is first utilized to reveal the linguistic features that are used significantly more often in initiating posts and lone posts respectively. Then, the keywords are subjected to discourse analysis and interpretation in the light of theories around dialogic space and MOOC learning.

### 3. Present Study

MOOCs are typically offered free to anyone around the world, thus attracting massive numbers of learners and discussion postings. This sheer massiveness may reduce the chance for learners to engage in repeated exchange with each other in discussions (Eynon et al., 2016), and may also lower the probability of a post being read and replied to. In MOOCs, learners may feel frustrated if their posts are seldom responded to (Hew & Cheung, 2014). In other online spaces, users were found to join the discussion for interactive purposes rather than cognitive gains (Springer, Engelmann, & Pfaffinger, 2015), and newcomers were more likely to continue their participation in the group if they received replies to their posts (Joyce & Kraut, 2006). It is therefore important to understand why only some posts receive replies. Nonetheless, MOOC discussion space may differ from other online discussion spaces in that it is not only an interactive space but also a channel for learners to reflect on the learning materials themselves (Laurillard, 2012). It is therefore important to understand the nature of the lone posts as well as the initiating posts in this particular context.

## 4. Methods

### 4.1 Corpus

The corpus consists of discussion posts from 12 MOOCs on the FutureLearn platform. Because the present study focuses only on the lone posts and initiating posts, the replies they receive are not included in the corpus. Furthermore, educators and facilitators' postings are also excluded because their language use might differ from learners' given their instructional role on the platform. The total number of lone posts and initiating posts in the corpus

are 117,863 and 32,080 respectively, with 6,162,230 and 2,401,795 tokens each. In this corpus, the number of lone posts number almost four times as many as the initiating posts. As a reference, there are 54,172 replies, which is about half the number of the lone posts.

### 4.2 Keyword Analysis

Keyword analysis was conducted to compare lone posts with initiating posts to examine the difference in linguistic features between these two types of post. The statistical measure used for the keyword analysis was the log-likelihood ratio test, which has the benefit of not being biased by huge sample size differences between the two comparison (sub)corpora (Rayson & Garside, 2000). A word is considered a keyword when the  $p$ -value for the log-likelihood ratio test is  $< 0.000000000001$  (Flowerdew, 2015). In addition, the effect size indicator Bayes factor must be  $> 10$  (Wilson, 2013), and the normalized frequency must be 5 per 100,000 following McEnery (2016), in order to ensure the keyword is a common word in the corpus. Lastly, the dispersion measure, Gries' Deviation of Proportion (Lijffijt & Gries, 2012), of each word must be smaller than 0.30 to ensure that the keyword is evenly distributed across the 12 courses.

### 4.3 Analysis of Keywords

The keyword analysis revealed 70 keywords that were used significantly more often in the initiating posts than in the lone posts, while 77 keywords were used more frequently in the lone posts than in the initiating posts. These keywords were then labelled for their function by examining the collocations and concordance lines of the keywords. In cases where this distant reading did not provide insight into the function of the keyword, a randomly selected 100-150 posts containing the keywords were subjected to close reading. As mentioned earlier, a word can have more than one meaning or function, thus the label applied represents only the most salient function of the keyword in the corpus (McEnery, 2016). In other words, the labelling is based where possible on the function of the keyword in the MOOC discussion under examination. The labelling of the keyword functions were decided with reference to Biber et al. (1999) and Rayson (2008).

## 5. Findings

The keywords and their labels are shown in Table 1. It emerged that a major group of keywords were found to be used for stance expression, which according to Du Bois & Kärkkäinen (2012), was related to intersubjectivity, so they were labelled based on this discourse function. Discourse particles and meta-language were also labelled respectively because of their salient discourse function in the corpus. For example, although *question* could be used as a verb to realise a speech act, it was used mainly as a noun and meta-language in the corpus, as in ...*the big question is...*

Other keywords were labelled mainly according to their grammatical function because, while their use in the corpus

Categories	Initiating Posts	Lone Posts
<b>Stance Expression</b>		
Modals/Modal expression	might, would could	will, need, able
Hedging	perhaps, seems, sort <sup>2</sup>	
Quantifier	Any	all, lot, much, every
Booster	surely, just, rather, else	really, very, definitely, always
Epistemic expression	wonder, wondering	aware, understanding, learned
Mental verbs		feel, feeling, think, agree, keen, hope, hoping, looking, forward, enjoy, enjoyed, love
Evaluative	Wrong	difficult, easy, excellent, better, interesting, informative, great, important, good, new
Negation	cannot, ca <sup>3</sup> , n't <sup>4</sup>	
<b>Others</b>		
Discourse particles	please, sorry	thanks, thank
Meta-language	question, article	information, course <sup>5</sup> , knowledge
Pronouns	He	I, my, our, their
Indefinite pronouns	anybody, anyone	everyone
Connectors	if, or, then, example, e.g.	also, and
Comparative terms/relational	than, same	more
Grammatical	the, that, there, here, does, did, was, were, 's, on, by	am, 'm, have, for, about, with, to
Punctuation	...-();?''':	!.
Speech act	mean, explain, tell, says, say, told, called	
Verbs in past tense/passive form	used, tried, came	joined
Verbs in present tense/infinite form		affects, helps, achieve, work, gain, meet, improve
Uncategorized	I, one, two <sup>6</sup> , numbers, missing, following, why, whether	like, well, week, main, currently, working, opportunity, education, environment, mind

Table 1: Keywords in initiating posts and lone posts.

was taken into account, no one salient semantic meaning or function emerged. Among these keywords, there were three groups of lexical verbs, speech acts, present/infinite and past/passive verb form. Because the communicative functions of the latter two groups of verbs could not be identified, so they were labelled by their grammatical form, which is their shared characteristics.

There was one group of keywords labelled as grammatical, because they are grammatical or functional words involving in a wide range of communicative functions which cannot easily be categorised. Additionally, their high frequencies in the corpus also rendered an in-depth analysis of their function impossible. So they were conveniently grouped together. Admittedly, there could be different functions within this group, for example *does*, *did*, *was*, *were* are primary verbs whereas *here* and *there* could be deitic (Biber et al., 1999).

Lastly, a group of keywords were uncategorized because their most salient function could not be determined. Some carried multiple meanings and functions in the corpus. Examples include *well* in *female as well as male* and *feeling well*, and *like* in *I'd like to* and *it sounds like*. Other uncategorized keywords were labelled as such because they were the only keyword with a specific label, for example *why* was the only *wh*-question word as a keyword in the

corpus, and *week* was the only referent to time.

In the next section, due to space constraints, only selected keywords that are relevant to dialogic spaces and MOOC learning are elaborated on.

## 5.1 Indefinite Pronouns

The indefinite pronouns *anybody* and *anyone*, which appeared as keywords in the initiating posts, were often used in questions to address other learners whose names are not known, or when there are simply too many people to address individually. For example *...So, does anybody have a good suggestion for a text book on...* and *...has anyone else come across this...* This usage of *anybody* and *anyone* is in contrast to the frequent usage of *you* in one-to-one text messaging in social contexts (Tagg, 2012) which may be more targeted and personalized. Yet, in the MOOC context, these indefinite pronouns open up space and provide agency to learners who would like to respond to the initiating posts. These two keywords also suggest that learners do not only orient towards facilitators but also other learners in their learning process.

In contrast, *everybody*, which was a keyword in the lone posts, was used in an all-inclusive way (Biber et al., 1999), as in *...we need everyone to control our daily waste...* and *...not everyone could afford them...* in order to take a strong stance. It was mainly used for greetings such as *Hi*

<sup>2</sup> 70% of the instances of *sort* collocated with *of*, forming the hedging expression *sort of*.

<sup>3</sup> *ca* is a token of *can* and resulted from the tokenization of *can't* into *ca* and *n't*. The tokenization was done by the treetagger (Schmid, 1994) used in the present study.

<sup>4</sup> *n't* resulted from the tokenization of *don't*, *can't*, *didn't*, *doesn't*, *isn't*, *couldn't*, *wouldn't*, *wasn't*, *haven't*, *won't*, *aren't*, *hadn't*, *hasn't*, *weren't*.

<sup>5</sup> *Course* was mainly used by learners to refer to the online course they were taking, as in *...looking forward to this course...*, although 8% of the instances were in *of course*.

<sup>6</sup> *I*, *one*, and *two* arguably function as quantifiers as well, but they differed from the other quantifiers in the sense that they are numerals that specify exact amount (Biber et al, 1999) and do not have the intensifying or down-toning function in stance expression.

*everyone*..., and for showing appreciation, as in *Thanks everyone*...

## 5.2 Connectors

The connectors *if*, *example* and *e.g.* were all keywords in the initiating posts. All three could be said to qualify or elaborate on a proposition by specifying a condition, as in *...unless the development damages the land (e.g. excessive clearing... and ...enhances your feeling of well being, if it is mutual but if it is unrequited...*, or by raising alternatives, such as *...Here I have an example of a vocabulary exercise which I came across earlier...* This qualification of a proposition provides details for others to understand or comment on and avoids sweeping generalizations that allow no space for discussion. Furthermore, *if* could also be used for politeness purposes to hedge an argument, as in *...if you think about it, this is far more...*

In the lone posts, *also* and *and*, which are normally used to connect similar ideas (Halliday & Matthiessen, 2014), were found to be keywords. This could be an indication that in lone posts, learners tended to pool ideas, without elaboration or specification (Dennen & Wieland, 2007). This is in contrast to initiating posts where *if*, *example* and *e.g.* were used to qualify proposition.

## 5.3 Stance Expression

As mentioned in the introduction, modals, hedges and boosters are typically used to intensify or minimize a speaker's or author's commitment to what they are saying in terms of the level of knowing, certainty, obligation, prediction or truth (Stubbs, 1986). The keywords found in the initiating posts, *seems*, *perhaps*, *might*, *would* and *could*, which are on the less certain end of the continuum (Biber et al., 1999), can serve to hedge one's ideas and invite others to fill the dialogic space with alternative opinions. For example, *...this is perhaps because we tend to...* and *...This might mean actually walking...* Furthermore, another two keywords, *wonder* and *wondering*, were also typically used in rhetoric questions where learners expressed uncertainty in their understanding, as in *...I wonder would the microbial diversity also mirror...* These linguistic features not only help express one's stance, but also invite the expression of others' stances, thus potentially facilitating intersubjectivity among learners.

Unexpectedly, keywords expressing a strong stance such as *just*<sup>7</sup>, *surely*, *wrong*, *rather*, and negations, *n't* and *cannot* were also used frequently in the initiating posts, for example, *...I really don't see the point of...* This is probably because strong negative views might be controversial and thus trigger responses from others (Chen & Chiu, 2008; Himelboim et al., 2009). In contrast, *think* which was mostly used in *I think*, was more frequently used in the lone posts. The reading of concordance lines revealed that *I*

*think* was commonly used in learners' responses towards discussion prompts or questions that were mentioned in the learning materials. Similarly, *agree*<sup>8</sup> was also used frequently to express agreement towards what had been mentioned in the learning materials, *...I agree with this definition regarding health...* or with what other learners had said in the discussions, *...I agree with many of the posts...* Both negation and agreement can be an intertextual acknowledgement of what has been discussed in the dialogic space (Dennen & Wieland, 2007).

Other keywords for the expression of stance found in the lone posts were those boosting a speaker's or author's stance through their semantic meaning of entirety (Rayson, 2008), such as *always*, *every*, and *all* in *...money taken in by a Company is not all down to their own effort, it relies on...* The semi-modal *need* which conveys obligation, was also used more often in the lone posts, *...We need to be more exact...* and *...I need to be ambidextrous...* The sweeping meaning of *all* and *we need* could prove face-threatening, thus inhibiting others from opposing and exploiting the space for other alternative voices. *I need* can be seen as an assertive personal resolution that is not intended to invite others to comment.

Lastly, the boosters, *really*, *very*, *definitely*, that were used more frequently in the lone posts, tended to collocate with expression of emotion, as explained in the next section.

## 5.4 Expression of Emotion, Appreciation and Reflection

In the lone posts, keywords for evaluation, *excellent*, *interesting*, *informative*, *great*, keywords for emotion expression, *keen*, *hope*, *hoping*, *looking forward*, *enjoy*, *enjoyed*, along with the boosters mentioned above, exclamation mark and discourse particles *thank(s)*, pointed primarily to the positive sentiments expressed by learners. Most of the positive sentiments constituted personal reflections on what the students want to learn, as in *...Really looking forward to learn...*, or on what they have learnt, *...I enjoyed this course and definitely learned a lot in...*, as prompted by the learning activities at the start and end of each course. These reflections as well as expressions of gratitude to the course educators, *Excellent range of resources*, *thanks!* may not be written with the intention of inviting responses, but serve as a public expression of stance and emotion. The first person pronouns *I*, *my*, *our* and the epistemic expressions, *understanding*, *aware* and *learned*, which were also used more often in the lone posts, also suggest the reflective nature of these posts. In the initiating posts, keywords with similar functions were not found.

## 5.5 Questions and Requests

In the initiating posts, the keyword *question*, the discourse particle *please*, question mark, and the indefinite pronouns *anybody*, *anyone*, as well as *wonder* and *wondering*, seemed to suggest that questions and requests were frequently constructed. The use of the keyword *question* may serve to attract others' attention, as in *Question: does*

<sup>7</sup> *just* could also be used as a hedging device as in *...I just want to say...*

<sup>8</sup> Only 2% of *agree* collocated with *n't* in the lone posts.

*anybody* knows what kind ...?.... It was sometimes also used to refer to a concept under discussion, ...*the question of sustainability needs*... or refer to specific question in the quiz, ...*I noticed the Quiz question 3*... Intriguingly, among all the *wh*-words, only *why* is a keyword, perhaps because *why*-questions can trigger various speculations from others, thus creating a space for multiple voices. In lone posts, keywords with similar functions were not found.

## 6. Discussion and Conclusions

The keyword analysis indeed revealed a difference in the discourse between initiating posts and lone posts. This preliminary analysis showed that initiating posts were often constructed in a question format. In initiating posts, learners often used *anyone* or *anybody* to invite others to join the dialogic space. Their use of modals and hedges for mitigation also creates a less face-threatening space for others to join in (Lander, 2015; Martin & White, 2005). *If*-conditionals and *example* were also used to create a dialogic space through specifying an elaborated scenario in relation to their proposition (Dennen & Wieland, 2007).

Unexpectedly, the strong negation in the initiating posts also seemed to attract replies. This is in contrast to lone posts which expressed agreement or appreciation in a reflective way; that is, through personal pronouns, mental verbs, positive evaluative word, and *thank(s)*. Because reflective writing is often monologic and single-voice rather than heteroglossic, so this kind of post might not encourage replies. Yet, this reflective writing in the lone posts was in line with one of the education purposes in online discussion--reflection and thinking (Laurillard, 2012; Wegerif, 2010). Additionally, the positivity created by these posts may have helped create a positive learning environment (Lander, 2015; Walsh & Li, 2013), even though the number of such posts could sometimes be overwhelming.

Lastly, the occurrence of disagreement or agreement towards learning materials and other learners in lone posts and initiating posts suggests that learners engaged in intertextuality and heteroglossia even though they were not writing a reply towards a specific post (Dennen & Wieland, 2007). Perhaps the disagreement towards course content expressed in the initiating posts was raising another voice, so potentially opening up a dialogic space. In contrast, an agreement towards course content or other comments without targeting a specific learner, as expressed in the lone posts, could be deemed as an addition to a pool of similar ideas (Dennen & Wieland, 2007), similar to the cumulative talk that Mercer (2004) identified.

Admittedly, this keyword analysis is quantitative and exploratory in nature. The categorization of keywords provides only a broad picture of the typical linguistic features used in each type of posts. Additionally, it should be noted that keywords in one type of post were also used in the other type, but were used less often and could be for other functions that have not been explored. Given that the function and meaning of each word largely depends on the context it appears in, further in-depth discourse analysis of selected keywords, as well as full conversation threads including the replies that were not examined in the present

study, should reveal how each linguistic feature opens up or closes down dialogic spaces.

## 7. Implications

The findings of this keyword analysis could inform MOOCs learners about how to construct their posts and what to expect in terms of responses to their posts. To engage with others, learners could try to construct their posts as questions, with hedges and indefinite pronouns. They could also be reminded that not receiving a reply to their reflective or appreciative posts should not be seen as a disappointment but reflects wider trends across this type of discussion forum.

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